2:Underhill E-5 (1931-1935)1939 NU28 Papago NU28
Pima NU29

Colorado, other food gatherers, the Southern California Shoshoneans, extended it almost to the sea. But, between the Pimans and these congeners of simpler culture, was thrust a wedge of another stock, the Yuman, occupying the Colorado River valley and its adjacent highlands so as effectually to separate the southern agriculturists from the northern and western food gatherers.

Pa Pi 174

Pimans thus found themselves at the meeting point of several areas, both cultural and geographic and, because of their situation in open desert country, they were in easy communication with all. Well worn routes led to the south where they traded with their more prosperous linguistic relatives. To the west, a few days journey over identical desert country brought them to the River Yumans, whose living conditions were so similar that the equipment of the two peoples often coincides, point for point. To the northwest, open Basin and Range country continued into the great stretches occupied by their Shoshonean kin.

Travel was more difficult to the northeast, where the Pueblos stood on the high plateau that marks the change from torrid to temperate country. At least in historic times, the intervening rough country was held by Apache, enemies of the Pimans. Yet, in prehistoric times, it was down over the Mogollon Rim that Pueblo immigrants filtered into the Gila and it is with the Hopi, above the Rim, that the Papago show some of their most obvious likenesses.

It was only at the east that communication stopped. There, in historic times, lived the Apache, whom the Pimans met only in war skirmishes and from whose country they brought not a shred of booty to spread its evil magic. Pimans owe nothing to the Athapascans except the constant stimulus derived from two centuries of warfare and any likenesses between the two peoples must be traced to a common source in the Pueblos.

Pa ●

The country of the Pimans themselves is a southern extension of the Basin and Range area which has been roughly described as a desert parallelogram, outlined by streams. It was the Pima, the River People, who occupied the stream valleys, while the Papago, the Desert People, made the best of the arid interior. Their land was a succession of flat valleys, floored with wind blown pebbles and interrupted by low mountain ridges, water and wind eroded into gullies and pinnacles. The ridges are never continuous and a wandering people could thread its way to and fro over the whole desert without encountering any obstacle but thirst. On the lower slopes grow giant cactus, cholla and prickly pear, widely spaced so that each may have its share of water and with their succulent stems veiled from the blinding light by forests of white thorns. Along the dry

Pa Pi 133 ●

Pa Pi 137

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

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Raymond B. Spicer

BABOQUIVARI PEAK, CENTER OF THE PAPAGO UNIVERSE

[Facing p. xiii]

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

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PLATE I

ISOLATED HOME IN THE BABOQUIVARI FOOTHILLS

4: Joseph et al D, E-5 (1942-1943) 1949
NU28 Papago NU28

queries about their personal affairs seem to them extremely bad taste. The Papago like privacy and respect the same desire for it in others.

Despite their quiet and controlled behavior, there is nothing somber or morose about the Desert People nor do they lack interest in what goes on around them. They are extremely observant and curious about details. With their friends they gossip constantly, but to be vindictive or to show off is not regarded with approval.

Though the reserve with which Papago greet a white stranger is often called "stolid" by people who do not know them, facial expressions are pleasant. Among themselves they laugh at the endless joking that goes on among family members, over a comic incident, a child's improper behavior, a misstatement, or their own embarrassment. They love to sing, and, in any Papago group, smiles and laughter are constant accents to conversation.

Gifts serve as acknowledgment among the Desert People for their language has no phrase for "thank you"; too, they give because they like giving, and the person who does not is thought to be not quite Papago.

THE DESERT

It is no wonder that the Papago were not pushed off their land as were many other Indians. This area is one of the hottest and driest in the country, a land in which, with experience and hard work, a family can make a living; but it offers little in the way of surplus.

The Papago country, often referred to by its Spanish name of Papaguería, is a part of what natural scientists call the Lower Sonoran Desert, an area extending north and east to the Mongollon Rim in Arizona, westward into southeastern California, and southward along the western coast of Sonora and Sinaloa in Mexico. It is characterized by a basin and range topography, extreme drought and torrential rainfall, and great changes in daily and seasonal temperatures. A series of small ranges of rugged mountains run roughly northwest to southeast, with wide alluvial valleys marked by networks of washes or arroyos.[4] Elevation of valley floors varies from 1,400 to 2,600 feet, but the mountains on the whole are not high enough to affect rainfall except for the Baboquivaris on the eastern edge, where the tallest peak reaches 7,740 feet and seems to keep all the surrounding desert under its eye.

Rainfall in Papaguería is not only scarce but unpredictable. Rains come in the winter months and again from July through September. The gentle winter rains fall steadily over the whole area, sometimes for several days at a time,

4. A wash or arroyo is a stream channel which carries water only after the rains. Water rushing down the wash rapidly covers adjacent lands in what are known as flash floods.

5: Castetter & Bell N-5 (1938-1940 1942
NU28 Papago NU28
Pima NU29

Chapter II

LAND, CLIMATE AND VEGETATION

Most of the Piman territory lies within the area known as the Sonoran Desert, described by Shreve, as well as within the Sonoran Biotic Province, delimited by Dice. The vegetation of the Mexican portion of the area has been discussed by Brand.[1] That part of Pimería Alta falling within the scope of our field studies on the Pima-Papago lies in southern Arizona, and is nearly coincident with the southern part of the physiographic division designated as the Basin and Range Province. It is an arid country with well-eroded fault block mountains rising between broad, waste-filled, intermont depressions. In the lower portions of these depressions, farthest from the mountains, sand and gravel washes traverse the flat, silt lands, which have a surface veneer of coarser material. As the mountains are approached, the terrain rises in long, gentle, alluvial slopes of sandy soil which still nearer the mountains become gravelly or stony, until rock floor finally is exposed in the washes. The general axis of surface features is northwest to southeast. These intermont plains rise gradually from an elevation of several hundred feet in the west to more than 2,500 feet in the east and northeast, and from them rise abruptly the low, narrow mountain ridges which are most massive and elevated in the east, culminating with the Baboquivari Range and its peak with an elevation of 7,741 feet.[2]

Climatically the chief features of our area are the low and erratic precipitation, averaging about ten inches on the inhabited plains and associated with a very high rate of evaporation; the high summer temperatures often well above

[1] Shreve, *Plant Life of the Sonoran Desert;* Dice, *The Sonoran Biotic Province;* Brand, *Notes to Accompany a Vegetation Map of Northwest Mexico.*
[2] Hoover, *The Indian Country of Southern Arizona,* pp. 39-45.

5: Castetter & Bell N-5 (1938-1940 1942
NU28 Papago NU28
Pima NU29

dently cultivated in places; none of these upper terrace lands has been utilized by the modern Pima. Since the subjugation of the Apache, the Pima have been extending their settlements gradually over the tillable lands of the lower terrace, although at the middle of the last century they were almost entirely concentrated in villages on the south side of the river from about two and one-half miles below Sacaton westward nearly to Pima Butte.[11] Irrigated lands in the vicinity of Sacaton have always been located chiefly on the south side of the Gila since the north side has less bottomland and irrigation is more difficult. A detailed history of irrigation on the Gila River Indian Reservation together with the history of the various canals and ditches is given by Southworth.[12]

The Desert and the Papago

Our Papago land as delimited is an arid, forbidding, isolated desert region in which life was conditioned largely by the scarcity of water. Long ago Font tersely aired his opinion of the area thus: "In short, in all this land of Papaguería which we passed through, I did not see a single thing worthy of praise."[13] Formerly it was thinly populated throughout by Papagos who at present live almost wholly in its eastern and central portions. In 1925 Bryan[14] observed that the spacious western portion of the region, which has a rainfall of less than five inches per year and contains extremely few permanent watering places, was inhabited by a solitary white man. However, various factors have contributed toward making this western territory more accessible and habitable within recent years.

The climate of our Papago region is characterized by high temperature and low precipitation. Summer temperatures

11 Hoover, *op. cit.*, pp. 46-8; Haury, in Gladwin *et al*, *Excavations at Snaketown*, I, 50-8; Bartlett, *Narrative*, II, 233.
12 Southworth, *op. cit.*
13 Bolton, *Anza*, IV, 55.
14 Bryan, *op. cit.*, xvii.

6: Densmore E-5 (1920) 1929NU28 Papago NU28

tion and it was the opinion that there was no mixture with Mexican or Spanish. The Government maintained four day schools on the reservation.

The study of Papago music was begun at San Xavier, near Tucson, Ariz., in February, 1920. The Papago village is near San Xavier Mission, which was established in 1692. At this mission the Franciscan Fathers minister to the Indians, who number about 700 in this locality. The Government agency was located here in 1915, but was moved two years later to Indian Oasis, now known as Sells, Ariz. The Papago at San Xavier live in adobe houses and still grind their own corn, but are adopting a general use of food supplies purchased in Tucson. (Pl. 2.) The country around San Xavier is desert with mesquite and cactus. There are rugged hills and deep gorges cut by rivers that are raging floods at some seasons and "dry runs" at other seasons. The principal varieties of cactus are the saguaro or giant cactus, and the cholla. (Pl. 3.)

On a hillside near San Xavier is an old burial place. (Pl. 4, *a*.) The burial spaces are formed by building a low stone parapet on the side of the hill and roofing it with heavy timbers thrust into the hillside. The bodies were placed in these spaces, or shelters, and all openings were closed with stones. After a suitable time the bodies were taken out and others were placed in the inclosure. There were compartments in these burial chambers and several bodies were placed in each compartment. They have not been used in recent times and some remain tightly closed, while in others it is possible to see parts of skeletons and fragments of various sorts. Plate 4, *b*, *c*, shows the same opening, one being at a distance and the other showing the interior, where a skull can be seen. Near it was a bone that appeared to be part of a leg or arm. Scattered about were bits of leather resembling parts of a saddle. This place is particularly sightly. It faces the south, with a magnificent sweep of view. The mountains in Mexico can be seen at a distance of about 40 miles, while in the foreground is an expanse of desert. The old and new are strangely mingled here, as it is in this desert that the Government is establishing (1921) an irrigation system by means of which the Indians will be able to irrigate their land.

A further study of Papago music was made in November and December, 1920, at Sells, more than 60 miles west of Tucson. Songs were also recorded at Vomari village, and information was obtained at Santa Rosa, the former being in the extreme southern and the latter in the extreme northern part of the reservation. The customs and songs differ somewhat in different localities, and numerous photographs were taken showing the geography of the country. Between Sells and Vomari the country is more mountainous than in the vicinity of San Xavier, the most prominent mountain being Baboquivari

6: Densmore E-5 (1920)1929 NU28 Papago NU28

(pl. 5), with which some of the most interesting legends of the Papago are associated. It is a peak in the Coyote Range. According to Lumholtz, the name Baboquivari, or Babokivari, is a Spanish corruption of Vavkivolik, meaning mountain (*vav*) narrow around the middle (*kivolik*). When seen from the south this mountain appears to be drawn in at the base.[1a]

The principal industry at Vomari is cattle raising, and the water holes are valuable, as in all desert regions. The inclosure around the water hole at Vomari village is shown in Plate 6, *c*.

Santa Rosa village was almost deserted at the time of the writer's visit, the Indians having gone to work in the fields along the Gila River. The doors of the houses were barricaded with brush (pl. 6, *a*) or with a large grinding stone. One family remained and was visited. An interesting ramada (pl. 6, *b*) was near their house.

MUSICAL INSTRUMENTS AND THEIR USE

Four musical instruments are in use by the Papago. In some classes of songs only one instrument is used and in others it is permissible to use two sorts of instruments.

1. *Gourd rattle* (*cakot*).—This was used with the songs to bring rain and with songs used in treating the sick. No other instrument was used.

2. *Scraping sticks* (*hiohkat*).—These were in pairs, one stick being slightly curved and notched, the other smooth for rasping downward and upward across the notches. Two pairs were obtained by the writer, one having 15 notches and being about 2 feet long, the other having 11 notches and being about 18 inches long. These were used with the medicine songs that come from the ocean and in the Viikita. They were used either resting on the basket-drum or held in the hand. Their use with the basket-drum is shown in Plate 7, *a*.

3. *Basket-drum* (*tamoa*).—Any basket of medium size that was in household use could be used as a drum by inverting it on the ground and striking it with the hands. The one obtained by the writer has been used for this purpose and is 16½ inches in diameter and 5½ inches in depth. Preparatory to its use the basket was dropped on the ground in such a manner as to cause an explosive sound that could be heard a long distance. Three or four men could play this instrument at once, kneeling beside it and striking it with their hands. (Pl. 7, *b*.) Some of the men might shake a rattle with the left hand. Drum and rattle were used in the *Limo* and Bat dance.

4. *Flute*.—This instrument (pl. 1) is made of cane, the outer septums removed but the middle septum retained. Two small holes are made from the outside into the bore, one on either side of the

[1a] Lumholtz, Carl, New Trails in Mexico. New York, 1912, p. 96.

6: Densmore E-5 (1920)1929 NU28 Papago NU28

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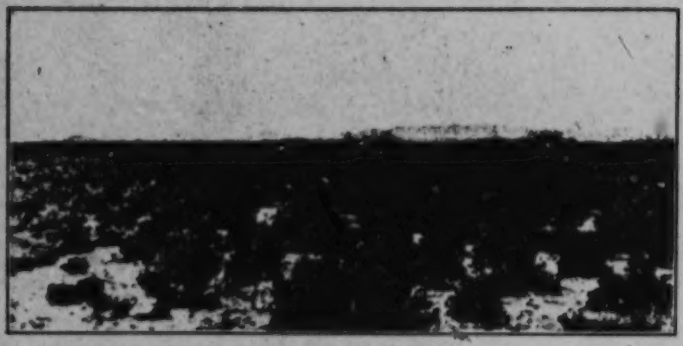

A, Desert near San Xavier

A, Hillside with saguaro cactus near San Xavier

A, Chain cactus near San Xavier

6: Densmore E-5 (1920)1929 NU28 Papago NU28

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a, Baboquivari Mountain, southeast of Sells, Ariz.

b, Foot of Baboquivari Mountain

c, Opposite Baboquivari Mountain

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

the wagon was not wanting; also rifle, shot-gun, and rid- 122
ing saddle were taken along, not to mention photographic cameras and the necessary scientific instruments. In the outskirts of Tucson, near an old mill, we filled our barrel and gave our horses a good drink at the clear, smooth-flowing stream of the Santa Cruz River, which was in such a delightful contrast to the arid landscape.

It had been my intention to go down first along the eastern side of the Baboquivari Range as far as La Osa Ranch, but the road turned out to be sandy and heavy, and I was obliged to return and limit my initiatory journey to travelling along its western side. A happy-look- [527]
ing Papago family from the suburbs of Tucson passed us on their way to the sahuaros (giant cactus); they were going to spend the *Dia de San Juan*, midsummer day, in the country picking the much coveted fruit. An Indian on horseback was on his way to the hot city, Tucson, for the same celebration. Everyone to his taste!

Baboquivari is the familiar name given to an exten- 133
sive range south-west of Tucson. From its central part rises a peak of somewhat striking shape which gave origin to its name, Baboquivari being a Spanish corruption of the Papago name Vavkívolik, meaning: "mountain (*vav*) narrow about the middle (*kivolik*)"; seen from the south, the almost perpendicular sides of the peak appear slightly drawn in at the base. The peak, rising nearly fifty miles south-west of Tucson as the crow flies, can be seen from a great distance, from the neighborhood of the Jack-rabbit mine and the Ajo Mountains in the west, to Altar, Sonora, in the south. Prof. R. H. Forbes, of the

7: Lumholtz N-5 (1909-1910)1912
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133 University of Arizona, in July, 1898, succeeded in ascending it, and by an aneroid barometer the height was found to be 7,850 feet above sea-level. The ascent was made from the west side, and, to quote his own words, "the extreme top of the mountain is a gentle oval about a hundred yards across. From this lofty vantage the eye sweeps over about three hundred miles of a terrific and almost untouched wilderness of rocks." There is a small pool on top which holds a few gallons of water after rain. In rainy weather, water drips down on the north side five hundred feet below the top, where several small pools were seen.

It is perhaps at the latter place that the pond is found [778] which is called by the Indians Viikan Shôotak, "Lasting Water" (*shôotak*, water), and which in the belief of the Indians was left by the sea after the deluge. At the time of the making of sahuaro wine for their great feasts of the summer, people go up there to get some of this water, after having first sung to it, to use in the wine making.

132 On Friday, June 25, we approached from the west the large rancheria called Fresnal, situated among the foot-hills below the peak of Baboquivari, which looked more magnificent from that point of view than from any other I have seen. The air was very pure and transparent, and I took a photograph of the peak at half-past five in the afternoon. Just as I cast a glance backward, before making a second exposure, I was astonished to see that the region toward the west and south was hazy, and I had scarcely time to make the exposure when the haze and a light wind, moist from the sea, arrived. A

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

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PEAK OF BABOQUIVARI, SEEN FROM NORTH-WEST

[Facing p. 32]

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

361 Papagoes do not bathe in them; during the rains they
312 get their baths in the arroyos, men and women bathing
515 separately. There was not a soul to be seen anywhere, as the Indians were still at this time, the end of June, in or near the mountains with their cattle and horses.

133 From a lately established summer rancheria, called San Miguel, southward, the country assumes a different aspect, forming beautiful grassy plains or downs. The mezquites, far apart and small, take the place of greasewoods and the cacti have almost disappeared. There was an abundance of very dry grass of a whitish yellow hue. As the air was laden with moisture, it was to be expected that the coloring of sky and mountains would be fine toward sunset. The western sky beamed with the translucent color of light yellow or orange, while the mountains, which during the glaring light of the day had shown no color beyond a dull gray, appeared deep blue. Much more intense than the air-blue and complementary to that of the setting sun, the color extended to all the mountains around the great *bajio* (basin), while at its western edge a long narrow strip of light green, due to an unusual growth of mezquites, added to the variety. To most people it is not apparent that there is much coloring in any landscape except that caused by inherent qualities, as by vari-colored leaves of trees; if they would lie down on the ground and view the scenery horizontally, they would probably have their eyes opened from this unusual vantage point.

312 There is a well fifteen feet deep at a lonely Indian
361 ranch just on the border, but as the place was found to

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

morrow in the afternoon, and some will not return until the third day." It was the hottest time of the year—the end of June.

Three miles from here, just about where the llano begins, there rises a small hill, four hundred feet high, called La Ventana. On the west side it has been fortified by the ancient people with half a dozen or more stone walls of the usual description. The walls are perhaps more massive than is the case at most places. The fortifications had a remarkably fresh look about them, as if they had been in recent use. On top, where blocks had been broken off to form walls and parapets, the underlying rock still looked as untouched by the hand of time as if the work had been done within two years. Circular or square enclosures of the usual type are seen on a natural terrace near the top. A fairly well constructed track leads up to the summit where a rattlesnake was resting in a cool cavity. A ground-squirrel was noticed, and on the hill-side two camping places of the gray fox were observed, each under a small bush, the ground having been worn quite smooth.

The vast plain is impressive from the top; the ranges, enveloped in a blue haze, appeared small, Comobabi and Quijotoa in the north-west being the nearest. To the right of the Comobabi Range, in one place only, toward north north-west, the view was unobstructed as far as the eye could see. In the south-west the small hills near Sonoita were visible. The many arroyos on the west side of the Baboquivari Range are worthy of note; they are short, quite deep, and impossible for wagons to cross

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

until they widen out into the plains. For this reason the road, such as it is, from Fresnal southward makes a détour west.

At the well of Fresnal our horses, having been without water for twenty-two hours, each drank nine bucketfuls. The bucket was not large, but contained more than a gallon. A visit was made to the so-called Montezuma's Cave, once sacred to the Papago as the principal habitation with which tradition credits Sīhu, also called Ĭitoi, the most important mythical personage of the Papago mythology, being their elder brother as well as creator of the world. The cave is called Elder Brother's House (in Papago, Sīhuki; *ki*, house). It is situated at six miles' distance from Fresnal. We climbed nearly one thousand feet, and on the south side of a hill, below the peak, our guide, the medicine-man, pointed out the entrance to the sacred place, half hidden among bushes.

It was closed with a wall of loose stones and was so small that a man could only squeeze through with difficulty. The cave was found to be spacious and well formed. At one corner was deposited several hundred arrows, upright in a bunch, with nothing but the wooden part remaining. No flint points were visible. There is another cave on the east side of the Baboquivari Range, discovered lately by Mr. Jefferson Milton, where a considerable number of obsidian-tipped arrows were secured, one of which is reproduced at page 96.

Though a few showers had fallen lately, still no grass had yet made its appearance and travel began to be difficult. The Indians had very little to sell in the way of

7: Lumholtz N-5 (1909-1910) 1912
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PEAK OF BABOQUIVARI

OCOTILLO (*Fouquieria splendens*)

ENTRANCE TO THE SACRED CAVE, AT FOOT OF PEAK OF BABOQUIVARI

BARREL CACTUS

[Facing p. 42]

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

136 from eight to ten inches, not less than eight, distant from the animal. I did not notice whence the fluid came, but I observed that its left eye was bloody; in other ways it seemed normal, and had evidently not been maltreated by the dog, which feared its spines. On my return to civilization I find that the singular habit of ejecting blood from the eyes, peculiar to this animal, is known to the ranchmen of the region of its habitat, both Mexican and American, and that it also has been brought to the attention of men of science. It has been suggested that the habit is practised only during the time of the shedding of the skin.

231 The night spent at the next rancheria in the Baboquivari Range was disturbed by the constant, melancholy, low howling of a dog mourning the absence of the family. He was a very old dog, a black and white cur, with an honest-looking face. Usually Indian dogs have little reason for loving their masters, who show them small
● 133 consideration. After having visited a new Indian settlement called San Pedro, in the Roskruge Range, where there is excellent water in a well twenty-six feet deep, we continued our trip for six miles northward along the
[137] western foot-hills. There are extensive sahuaro forests in this undulating country, which were unusually picturesque in the afternoon sun. We came across one or two camps of Indians who were gathering the much-relished fruit.

224 At dusk we met two young men on horseback returning from a shooting expedition, who presented us with
000 half a deer tenderloin and some ribs. My aim was to

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

In 1881: A relative became crazy, killed his wife with a knife, and then himself. 159 173

In 1882: First *fiesta* in Mexican fashion took place at a rancheria which formerly existed where at present the Indian Oasis is. (This means that the Indians of Arizona began to adopt the social gathering in use among the Mexicans, without imparting any religious importance to the festival. A fiesta among Mexicans always includes dancing, which, in our time, has been adopted by the Papagoes of Sonora, but generally not in Arizona. On the occasion related, the people danced one by one in a circle.)

In 1885: A visit to a Pima feast. Many singers went, and many others, all well dressed. [527]

In 1887: An earthquake in the "flowers disappear" moon. [133]

In 1889: The Pima took part in a dance in order to secure cattle. This was in the "dry grass" moon.

In 1890: A feast at San Xavier in the "dry grass moon."

In 1891: San Xavier Indians came to dance at Kvitatk (near the "Pump-house" near Horseshoe).

In 1893: A foot-race at Kvitatk in "inner bone" moon (winter). The racers starting in the middle of the day, ran as far as Santa Rosa, returning at dark (about 8 P.M.). [526]

In 1897: Foot-races at Áktjin.

In 1898: Two nephews put in prison in Yuma for smuggling mescal brandy.

In 1899: Two relatives imprisoned in Tucson for stealing cattle.

In 1901: He was isolated at Tucson on account of small-pox in the family. [164]

In 1902: A foot-race at Tjeavólitak.

In 1903: A foot-race at Kvítatk.

In 1904: The purification of girls in the winter. [783]

In 1907: His friends put in jail for fighting at a sahuaro feast at Kvítatk.

In 1908: Many Papagoes that were attending the fiesta of San Francisco in Magdalena, Sonora, were imprisoned for resisting the Mexican authorities when being pressed into military service to fight the Yaqui. A chief from San Xavier went down to Magdalena and helped them to get out.

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

family had arrived, so we continued our journey toward the southern end of the Quijotoa Range.

136 In the evening mosquitoes and other insects gathered around the lantern and small brown beetles crawled inside of my trousers or through my hair, reminding me of tropical climates. Next morning, before starting, I had a refreshing bath in a small water-hole, while a butcher-bird (*lanius*) in a near-by bush sang with all his might, apparently enjoying the changed conditions as much as myself. This bird was often seen in the desert, often 132 far from water. Although the thermometer registered as high as 92° F. in the warmest part of the day, still the atmosphere, refreshed by the storms, felt remarkably cool, and the weather was cloudy.

133 The southern part of the somewhat extensive Quijotoa Range, separated from the rest, is called by the Papago, Kihotóak (*kíbo*, burden basket; *tóak*, mountain), said to be derived from its shape. The Spanish name of the whole range is a corruption of this native 622 name. I was glad to find Chief Alvina in his camp, which was in close proximity to great forests of sahuaro on the slopes along the eastern base of the mountains. [574] He brought me as a welcome some pitahaya fruit which tasted remarkably well. All the rest of the fruit gatherers had already left, for the sahuaro season was over, though [37] there were still to be found pitahayas, the other savory cactus fruit of the region. There was no pasture; our horses fed on rolled oats, besides relishing the leaves of the palo fierro (iron-wood) tree.

The chief was perfectly willing to be interviewed for

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

few houses near it and naming their rancheria from the tall chimney. Five miles north is a rancheria called Sikulhímat ("where the water goes around." *Síkul*, round). Here, according to the Indians, the drainage of rain water flows toward the Gila River; south of that place it flows toward Mexico.

Horseshoe is the name of a once noted placer mine, the surface of which has been worked out. There are gold mines of a similar nature around the southern end of the Quijotoa Range. Judge Day has a store at Horseshoe and buys gold from the Indians, who still, during the winter, keep up the "dry-washing" process here, using for the purpose the machines that are common to the neighboring district of Altar, in Sonora. The Indians are even able to make the machines themselves. Judge Day is a man of intelligence and much common-sense, and, having lived here since 1893, was able to give reliable information about matters pertaining to the region. According to him the padres from San Xavier Mission, two hundred years ago, found the placer mines of Quijotoa. He showed me some nice nuggets of small sizes which he had lately bought. Five years ago the Indians found free gold in a piece of quartz which was worth one thousand six hundred dollars. After that eighty Papago and a few Yaqui Indians worked here for half a year, taking out in value between ten thousand and twelve thousand dollars, Judge Day buying most of the gold. The relations between the miners—all Indians—were cordial. When any of them had found a rich spot, he would tell it to the others, and next morn-

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

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BEAUTIFUL EFFECTS OF WIND AND SAND, NORTH-WEST OF POZO DEL CABALLO

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THE PINACATE SALT DEPOSIT

Papago salt expedition's camp between the two clumps of greasewood to the left and in the middle

[Facing p. 272]

7: Lumholtz N-5 (1909-1910)1912
NU28 Papago NU28

APPENDIX III

GEOLOGICAL SKETCH OF THE PAPAGUERIA

BY CYRUS F. TOLMAN, PROFESSOR IN MINING AND GEOLOGY, UNIVERSITY OF ARIZONA

●133 THE two groups of formations most extensively developed in the Papagueria belong respectively to the most ancient of rocks and to those formed during geologically recent times—to the pre-Cambrian complex on the one hand and to the Tertiary-Quaternary group on the other. This great area has been studied only in spots by geologists, and therefore detailed knowledge of the formations is lacking, and they have not been matched up with those of other and better known portions of the country. As far as present knowledge goes, the older group consists of gneisses, schists, slates, crystalline limestones, and coarse grained granites—the granites and granite-gneisses being most abundantly developed in the south-western portion. The group of younger rocks is made up chiefly of extrusives; volcanics represented by andesites, rhyolites, rhyolite-tuffs, and basalts. These are mentioned in the order of eruption as shown in the majority of localities. The most recent of the basalts, the extrusion of some of which may have continued into historic times, form in cases perfect volcanic cones, but the older lavas and most of the basalts appear as remnants of flows in fault blocks, or better as fault strips, these upturned blocks and strips forming many of the volcanic ranges.

Less widely distributed than the two groups mentioned above, but important throughout the Arizona Copper Fields as ore carriers, are the Paleozoic Series of limestones and quartzites. These are found in the Papagueria in the eastern and southern ranges; for instance, in the Tucson Mountains, the Silverbell Mountains, the Sierrita Mountains, in the Vekol Mountains, in the Caborca Mountains, etc. In the southern Papagueria (District) a Mesozoic age is suspected for the thin bedded limestones abundant in this area, but as far as known to the

7: Lumholtz N-5 (1909-1910) 1912
NU28 Papago NU28

author the fossil collections necessary to determine this definitely have not as yet been made. Intrusive granites and porphyries, in general somewhat earlier than the flows, intrude all the earlier formations, and are responsible for most of the ore deposits of the region. 133

Of the many interesting physiographic features of this area, the most striking is the commonly developed knife edge form of the mountains which protrude above, and are partly buried by, the detritus of the valleys. These mountain stumps are always chiselled into precipitous slopes by wind and torrential action. The valley fill is largely subaërial, deposited by the withering torrents from the mountains, which rarely if ever reach the gulf, or brought up by the wind from the present and ancient strands of the gulf, and built into the extensive "médanos" described by Mr. Lumholtz. Only temporary incursions of the gulf up the valleys, in Miocene and later times, are suggested by the fossils collected by Mr. Lumholtz and others, and by the numerous abandoned shore lines of the Salton Sea to the west.

The climate of this region has undoubtedly been dominantly arid during recent geological times (late Tertiary, Quaternary, and Recent Periods), as shown by the physiography of the country, the make-up of the desert fill, etc. Brief respites, however, due to increasing humidity, are suggested by numerous "dry lakes," at times filled with water, and more recent changes by the deserted Indian villages, far from any known surface water supply. 132

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11: Hoover U-4, 5 (ca. 1930) 1935
NU28 Papago NU28

GENERIC DESCENT OF THE PAPAGO VILLAGES

By J. W. HOOVER

THE region of southern Arizona and northern Sonora, Mexico, occupied by the Papago Indians, was called Papagueria by the Spaniards. The name is again coming into use as the area is made to stand out in sharper contrast with the lines of settlement and civilization drawing more closely about it. Broadly considered, it is the area south of the Southern Pacific Railway and west of the Santa Cruz River, and north of the Altar Valley, Sonora. Disregarding several considerable outlying villages or groups such as those at San Xavier and in Tucson, the Papago villages are confined to that part of the area which is bounded on the east by the Baboquivari Mountain range and related low mountain groups extending northward. These also roughly bound the Papago Indian Reservation. On the north, white settlement is approaching the reservation boundary line. The western boundary is less definite, as in this direction the desert becomes increasingly inhospitable, merging into great precarious empty waste spaces, too barren to support even Papago.[1]

As part of the Basin Range Province, the Papagueria is characterized by flat detrital plains, interrupted by low fault block mountains which occupy the minor part of the area. The mountains are in an advanced stage of erosion, rugged and almost bare of soil and vegetation, due to aridity and spasmodic rainfall. The products of disintegration have been emptied onto the relatively depressed areas and spread out smoothly.

Both mountains and plains, or so-called valleys, have north-northwest by south-southeast axes, and the Papagueria lies open both to the north and to the south. So, northward the Papago villages blend into the Pima villages of the Gila River, interrupted by the wedge of white settlement extending from Florence on the Gila River westward through Casa Grande. And southward, they blend into the river villages of the Altar Valley, Sonora, now mostly Mexican. The Indians of the latter valley are really Pima as the Spanish padres made the distinction. The settled groups on the river flats wherever found were called Pima, and the somewhat migratory desert Indians were called Papago.

The eastern border land, the Santa Cruz Valley, was formerly occupied by the Sobaipuris, who like the Pima on the Gila and Altar Rivers, irrigated their fields on the flats of the Santa Cruz and San Pedro Rivers.

[1] Godfrey Sykes, The Camino del Diablo: with Notes on a Journey in 1925 (Geographical Review, Vol. 17, pp. 62–74, 1927); Eldred D. Wilson, New Mountains in the Yuma Desert (Geographical Review, Vol. 21, pp. 22–228, 1931).

THE MOUNTAIN FROM WHICH THE LEGENDARY MONSTER DREW THE PEOPLE TO THEIR DESTRUCTION

13:Davis E-5 (1920)1920 NU28 Papago NU28
[Facing p. 160]

THE PLAIN OF LIMY SOIL, THE ANCIENT HOME OF THE MONSTER

13:Davis E-5 (1920)1920 NU28 Papago NU28
[Facing p. 162]

13:Davis E-5 (1920) 1920 NU28 Papago NU28

grimage and ceremony may entail floods, drought, sickness, even death. To avoid these the people travel many miles, with teams or on horseback, under a blazing sun or in rainstorms, to participate in the ceremony. The place where the monster lived covers an area of two or three hundred acres of whitish earth or calcareous material, which the Indians claim to be the remains of the flesh of the monster. Below the surface are massses of immense bones. Quitovaquita is surrounded by tropical desert vegetation of palo verde, mesquite, palo fierro, giant or saguaro cactus, pitahaya or organ cactus, and other desert growth. It consists of twenty or thirty one-story houses, built of adobe or of stone imbedded in mud.

In the center of the village is a *charco*, or large pool, which is fed by a number of springs and furnishes water for the village, and drinking and wading places for burros, horses, and cattle. When the pool is filled, the water is used to irrigate the gardens of the villages. During the period of the fiesta the village is thronged with visiting Indians, and those who cannot find accommoda-

17:Castetter & Underhill N.E-5 (1931-1934) 1935
NU28 Papago NU28

soon after his death and their later history, in spite of the picturesque labors of the saintly Garces, shows no great revival. The Papagos, after a brief Spanish influence, were left to their own devices. They had acquired horses from the Spaniards, and had learned to plant wheat and some imported vegetables and fruits. Their houses gradually changed and adobe dwellings came into use, and as they adopted clothing it was the colorful mantilla and the Spanish cowboy costume which appealed to them. Many had been baptized by Kino and they continued to seek the priests so as to get for their children Spanish names. Except for these changes their old life continued, while the Pimas, whose contact was with the American whites of gold rush days, changed more rapidly. This paper therefore presents a brief account of Papago customs and ethnobiology as reported by the first Spaniards and as seen in the remoter villages at the present day.

The Papago country is one of the hottest in the Southwest; the annual rainfall is about five inches and this takes the form of violent storms in the summer, when for a few hours the washes run full. The country is a series of flat valleys between abrupt low ridges or hills, and it is only in the hills that there are springs which give a permanent water supply. Therefore, to get even drinking water the Papagos had to lead a migratory life, although it was a migration within set bounds. In the summer, after the torrential rains, they moved to the flat land to plant their small gardens, and from this base scattered out on food-gathering parties. The women brought in leaves, fruits, seeds, and roots; the boys hunted rabbits and birds, while the men attended to what agriculture was possible. They dug a reservoir which supplied them with drinking and washing water while it lasted, after which the whole village had to move.

There was generally a winter camp where all the members went, and this was called the Well, while the summer dwelling was known as the Fields. At the Well every family

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To the west, the main reservation is bordered by Organ Pipe Cactus National Monument, by the copper mining area around Ajo, and by the vast Williams Bombing and Gunnery Range.

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Topography. The reservation and adjacent areas lie within the Basin and Range Province, which is characterized physiographically by a complex geological history which has resulted in numerous small mountain ranges separated from each other by broad alluviated areas of extremely slight relief. Along the eastern border of the main reservation are the Baboquivari Mountains with the highest elevation at 7,730 feet. The elevation of the alluvial plains which makes up the greater part of the area is about 2,500 feet in the southeast part of the reservation, sloping almost imperceptibly downward to the north and west; on the west the elevation is about 2,000 feet, and at Chuichu in the extreme north it is 1,500 feet.

The reservation is drained by numerous intermittent streams or washes. The major drainage of the northern area is through the Santa Rosa Wash northward toward the Santa Cruz and Gila rivers; the western area is dominated by Vamori Wash, flowing towards the northwest and then turning sharply south where it meets the San Simon to flow into the Sonoita River in Mexico. These streams are fed by a network of numerous small tributaries. Except immediately after a heavy rain the streams are dry.

312 map 3). In addition, water in quantity has been found in
●133 the limestone rocks in the northeastern corner of the reservation and in the volcanic rocks that cover the western section (Heindl and others, 1961). Ground water at an economical depth also occurs on both the San Xavier and Gila Bend reservations.

It would appear from the Heindl report that ample water is available for residential, industrial, and stock water purposes in all sections of the reservations except in the mountainous areas. The community of Sells, for example, had a local supply of ground water which yielded approximately 250 gallons per minute. When additional water was required for the operation of the new Sells hospital, two wells, yielding about 450 gpm, were developed five miles to the west. When additional supplies are needed in the future, proven water bearing ground can be tapped in a wide [361] valley area three miles beyond the hospital wells. Communities located in the valleys, of course, would have ample local supplies. Such locations are Chuichu, Santa Rosa, Gu Oidak (Big Fields), Vamori, and San Miguel.

Water for irrigated farming on the reservation is limited by the lack of ground water at a depth which permits pumping at a sufficiently low cost for agricultural purposes. Water at depths less than two hundred feet is found only near Chuichu, in the Tat Momoli Valley to the south, and in the Santa Rosa Valley to the southwest. Water

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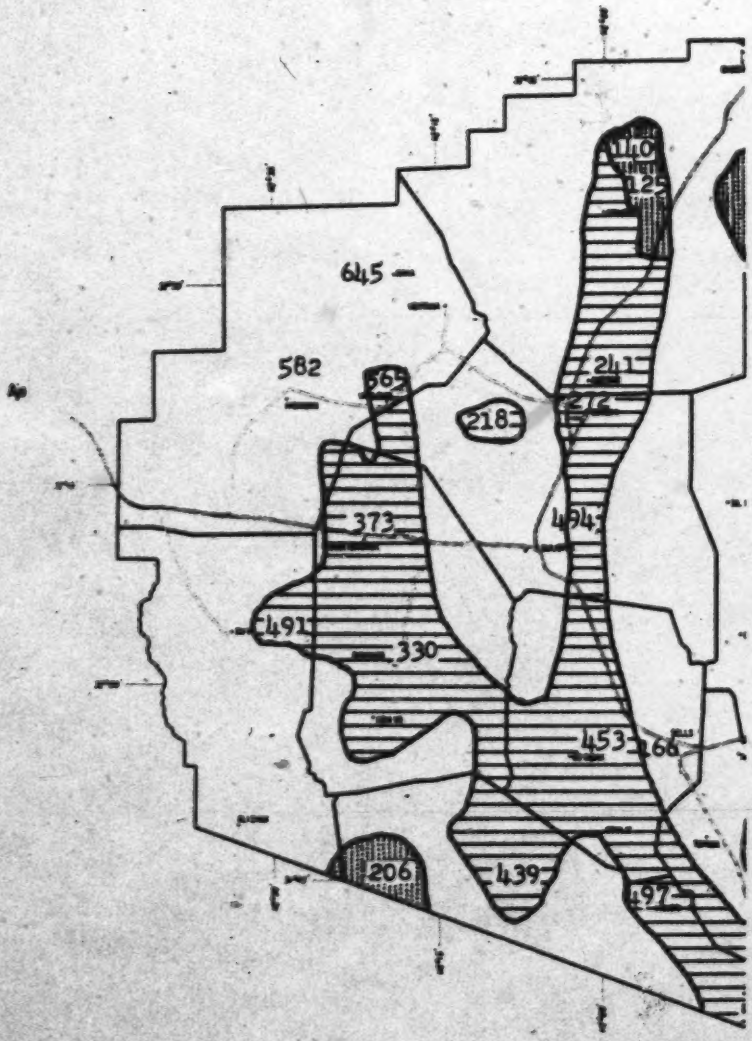

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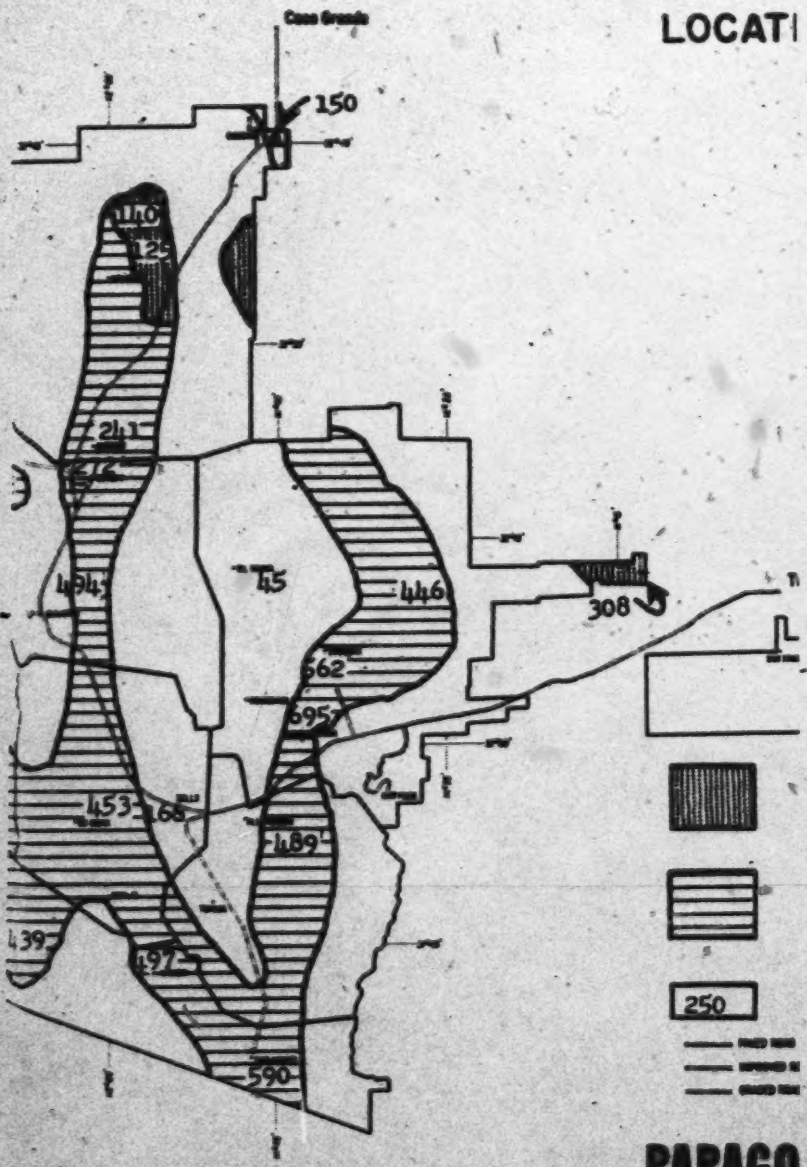

[p. 28-12]

18: Kelly E-4, 5 (no date) 1963 NU28 Papago NU28

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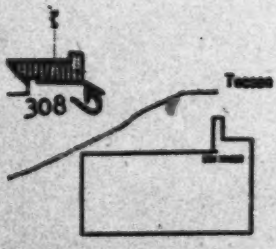
MAP 3
LOCATION OF GROUND WATER
(From Heindl and Others)



Areas where Ground Water Used, or Is Considered Sufficient for Irrigation.

Areas where Ground Water at 200 Gallons per Minute, or More, May Be Encountered at Depths of 100 to 600 Feet.

250 Depth to Water in Feet from Land Surface for Selected Proven Sites

PAPAGO INDIAN RESERVATION

1963

[E-28-A3]

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at 150 feet with a 100 foot draw-down is available at Papago Farms in the southwestern corner of the reservation. Water elsewhere is found at from 200 to 600 feet. Heindl reports on irrigation possibilities as follows (Heindl, p. 19):

> "Ground water is used, or is considered to be sufficient, for irrigation in five areas on the reservation. These are: (1) east of Chuichu, where about 1,200 acres are being irrigated; (2) the Santa Rosa Valley northeast of Kohatk, where pumping tests indicated potential yields of 1,000 gpm with draw-downs of about 50 feet; (3) the west-central part of Tat Momoli Valley along the reservation boundary, southeast of which commercial irrigation is now practiced; (4) the east end of the panhandle in T.14 S.,R. 11 E., which is in Avra Valley, an extensively irrigated basin; and (5) the Molenitas Valley in the southwestern part of the reservation, where quantities of water adequate for irrigation recently have been proved.
>
> "Information gained from examination of well cuttings and from bailing tests suggests that two other areas probably have sufficient ground water for irrigation development, but more adequate testing is needed for proof. These are Window Valley (west of Gu Achi) and the south central part of Gu Ciĉuk Valley (west of Sells). The rest of the areas that are outlined as part of the deep alluvial aquifers probably would yield water in sufficient quantity for irrigation development also. The alluvium in these areas is tapped only by wells of small yield equipped with windmills, but, because of the topographic setting and the fact that the alluvium is thick, potential yields of wells may be much greater. Thorough testing of the alluvium, however, should precede its development to pump irrigation."

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Water from wells on the reservation generally meets the chemical-quality limits suggested for domestic and public supply used by the U. S. Public Health Service

Table 15. Acreage and Value of Crops Grown on Irrigated Land in 1962, Papago Reservations

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Crop	Chuichu		San Xavier				Gila Bend	
	Indian		Indian		Non-Indian		Non-Indian	
	Acres	Value	Acres	Value	Acres	Value	Acres	Value
Garden	5	$ 2,500	17	$ 8,500	31	0	0	0
Cotton	115	47,840	8	3,000	246	$ 82,900	61	$23,000
Small Grains	200	15,975	20	940	210	19,230	260	17,342
Forage & Pasture	400	16,000	0	0	0	0	0	0
Totals	740	82,315	45	12,440	487	102,130	321	40,342

Gross value of Indian crops $ 94,755
Gross value of Non-Indian crops 142,472
Gross value of all crops 237,227

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The history of irrigated farming at San Xavier and at Chuichu goes back to pre-Spanish times. The San Xavier area was described by Juan Mateo Manje, who visited there in 1697 with Father Kino:

> "Here the river runs a full flow of water, though the horses forded it without difficulty. There are good pasture and agricultural lands with a canal for irrigation. The Indians harvest corn, beans, and cotton from which they make cloth to dress themselves. Squash, melons and watermelons were also raised. We counted 800 souls in 186 houses." (Karns, p. 92)

[133]
[286]
[162]

Subsistence farming with irrigation from stream flow continued at San Xavier until 1912 with the number of acres

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241
311

The rapidity with which the level of ground water in the Casa Grande Valley is being lowered now threatens the life of the entire Chuichu project. During 1962 the one remaining productive well on the west side was choked with silt during an early fall flood on the Santa Cruz, reducing its capacity from 750 to 250 gallons per minute. Since this well had already been drilled to bedrock at 230 feet, and the water level had sunk to within 20 feet of this point, it was decided not to redrill the well. The result will be the abandonment of all farming on the west side and the transfer of Indian holdings (a farming cooperative) to idle land on the east. 241 133 312 311

Even the eastern section, developed after 1955, is threatened with the lowering of the water table at a rate that may cause its abandonment during the next decade.

During 1962 five Indian farmers were growing crops in the eastern section. In addition, the East Chuichu Project (an Indian cooperative) farmed an area of 80 acres of which 40 were planted in cotton. During 1963 the 65-acre cotton allotment on the western side was moved to the eastern section and management of the new land turned over to a non-Indian operator. 248 311 [474]

Development of irrigated agriculture at Gila Bend and at Papago Farms has always depended upon leases to 241 311 427

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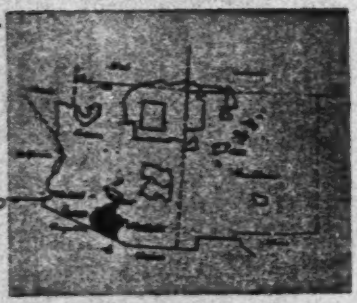

Lands held in trust for Indian Indian tribes by the U. S. government in the Southwest. (Papago reservations in black.)

Papago women playing at the ancient game of taka, which resembles field hockey.

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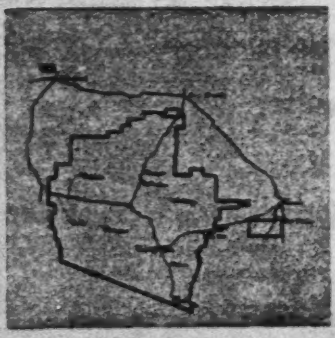

The Papago, Gila Bend and San Xavier reservations and their highway connections.

Chairman of the Papago Tribal Council (far left of group) joins in ceremonies opening the last section of paved road across the main reservation joining Tucson and Ajo.

131 A few Desert People live on a tiny 10,235 acre
657 reserve at Gila Bend set aside in 1912 by Executive
312 Order--leaving the village outside the reserved
[311] area! Some of this land could once be irrigated by surface flow from the Gila River which is now impounded far upstream, and none is farmed now.

A few Papagos live on the Maricopa Indian Reservation upstream under the Pima Indian Agency on lands partially irrigated by pumps tapping the underground flow.

The greatest number of the Desert People live on the 2,773,896 acre Papago Indian Reservation running north from the Mexican border within a few miles of the Southern Pacific Railroad. Only a few hundred acres at the northern tip of the reserve projecting into the Gila River valley can be irri-
[133] gated by pumped water. There is no running surface stream in the entire area. An irrigation of sorts
[433] using flood waters from late summer rains has been practiced for unknown centuries by the Desert People to raise subsistence crops to supplement the surprising variety of foods gathered from the desert plants or hunted. Water under this reserve is too deep and too scarce for economic irrigation.
[185] "To many Papago a good field, enough cattle to provide occasional meat and money, a few horses for prestige, and plenty of rain would make the ideal combination."[1]

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[1] Joseph, Spicer & Chesky, 1949, p. 59.

WHERE? . . . Two Counties

1464 The Desert People do not go far afield seeking work. They hire out to farmers in the river valleys north and east of their reservations in Pima and Pinal counties, Arizona. Most of the cotton grown in these two counties is planted on the flood plain of the Santa Cruz River.

● 133 The Santa Cruz rises in the U. S., swings all the way around in Mexico and flows northward and westward across southern Arizona to the valley of the Gila River which rises in New Mexico to the east, flowing westward to the Colorado River. These streams are located in part of the Basin-and-Range physiographic province, where broad flat valleys are separated by steep volcanic mountains. The [311] arable land in the Santa Cruz valley is restricted by mountains in the upper reaches, widening out into the tremendous Gila valley.

000 Some cotton is grown in Santa Cruz county, between Mexico and Pima county. Harvesting is done by local labor or Mexicans. Cotton is grown northward along the narrow river flats for a few miles between the county line and the San Xavier Indian Reservation. This is the Sahuarita-Continental area, so called after the two tiny villages located there. A small cotton gin operates at Sahuarita. The reservation and other uncultivated lands separate this area from the small farms, some of them growing cotton, around the city of Tucson on the Santa Cruz north of the San Xavier reservation, and on Rillito Creek which flows eastward from the Santa Catalina-Rincon mountain system to empty into the Santa Cruz.

This small-farm area, which is being taken out of farming into suburban home-sites for rapidly growing metropolitan Tucson, extends northward just past Jaynes Station. Desert intervenes between it and a small cultivated area at Rillito, which is properly a southern extension of the Marana farming region, but still separated from it by desert.

[Text Continues on P. 17]

Principal Drainage Systems
in Pima and Pinal Counties, Arizona

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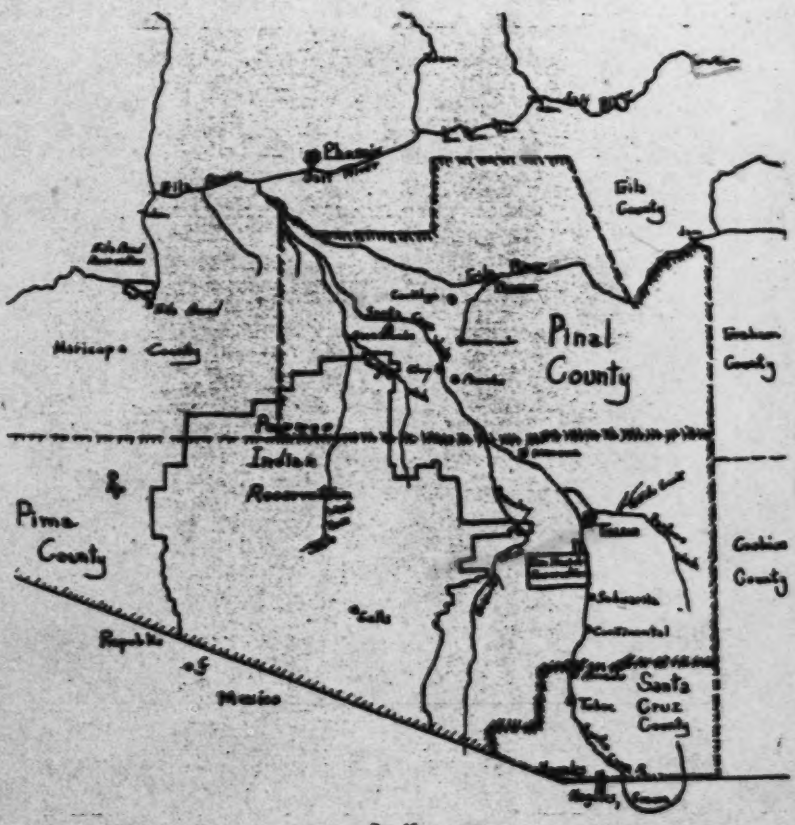

The corn-bean-squash fields are eroding and were always a gamble....

wheat stands are thin . . . and often don't ripen...

the range is known...

so cattle graze on cactus.

Pa 658 797

There is what is termed a "contract school" located at Tucson, which many of the Papago children attend. The school is established and supported in part by a missionary department of the Presbyterian church. The buildings are large, airy, well planned, and adapted to the purpose required. The pupils are well disciplined and clean. The government pays a stated sum annually to the school for each pupil in attendance as reimbursement for board and clothing furnished. The school owns 5 or 6 good buildings, all in good condition and well furnished, also a farm of 43 acres. On account of lack of water but few garden vegetables are grown, but barley and wheat yield abundantly.

Some of the scholars are taught carpentering, painting, and plastering, and their work is quite satisfactory.

PAPAGOS LIVING OFF THE RESERVATION.

Pa 131 197

These Papago Indians live in the southern part of Pima county, along the southern border of the territory of Arizona. Their language is similar to that spoken by the Pimas. They roam over a country about 100 miles in width north and south and about 125 miles east and west, and there are a few small villages over the Mexican border but near the boundary line.

Pa 13 231

The country in which they live consists of broad, open plains, divided by mountain ranges. The valleys or plains are arid, having no natural springs or running streams of water; yet after the summer rains these plains are covered with grass of a fine quality, and owing to the dryness of the air this grass is cured or dried on the ground and furnishes good, rich food for cattle during the remainder of the year.

Pa 361 312 342 [231]

The Indians select their dwelling places at the foot of the mountains near the mouth of the various canyons that open out into the plains. Small springs often flow through these canyons and sink into the sand. The Indians utilize these springs or sink wells into the sand, and thus secure the underflow from the springs. Their cattle feed out into the plains and return to these wells or springs to drink. Near these watering places, usually on an elevation, the Indians build their houses in their permanent villages of adobe, about 12 by 16 feet in area and about 8 feet in height. Small poles are laid on top and crosswise of the building, and on these are laid brush, with weeds or grass on the brush, the whole covered with about 6 inches of clay, which is impervious to water. The floor is of clay, and there is one doorway, but no windows. The doorway is sometimes closed with a dried beef hide. As a rule, they live on the outside of the house. The house contains no furniture except a little bedding and some cooking utensils.

Pa [352]

Pa 262 439 291

Their food consists of beef, dried wild fruit, dried mesquite beans made into a kind of bread, and wild game. During the summer rains they raise some vegetables, which they dry for winter use. They also sell or trade cattle to settlers in the Gila and Santa Cruz valleys for wheat and corn, which the women grind in their crude way into meal and flour. They have adopted the civilized mode of dress, and are gradually learning the use of soap.

The women of the tribe are virtuous and industrious, being in these traits far in advance of any other tribe in the territory.

Pa 161 648 Pa 46

There are 4,800 of this tribe living off the Papago reservation. With rare exceptions they are self-sustaining, have always been good citizens, and on many occasions have joined with the whites to assist in suppressing murderous Apaches. The principal occupation of the men is raising cattle and horses, and a little farming when they can find a piece of damp ground that will raise corn and vegetables, hunting, chopping wood around mining camps, and ordinary labor wherever they can find it. If there is any mixed blood in the tribe it is not perceptible.

There are several mining camps scattered throughout the country which these Indians inhabit, and in some of the large valleys wealthy men or companies have sunk wells 300 or 1,000 feet deep and established cattle ranches or ranges, and many Indians are employed about these camps and mines.

Pa 133 497 234

The country is somewhat difficult of access, as there are several mountain ranges running through it. The roads follow the valleys, and sometimes it is "a long way around where it is only a short way across". These mountain ranges abound in game, which the Indians hunt.

Pa 2073 231

A month's travel in these Papago villages failed to reveal a single case of drunkenness, although there are frequent instances of drunkenness among Indians in the streets of Tucson. They have great numbers of horses and cattle, but it is impossible to form a correct estimate as to numbers. The horses are small and inferior, but the cattle are fully up to the average in size and quality.

Pa 648 771 797

These Indians as a tribe have always been exceptionally friendly to the white people. They have never received aid from the government. The little religion they have is a conglomerate of Roman catholicism, superstition, and Indian bosdoism. The Roman Catholic church established missions among them more than 150 years ago.

THE RESERVATION AND NONRESERVATION PAPAGO INDIANS, PIMA AGENCY.

Report of Special Agent C. W. Wood on the reservation and nonreservation Papagos of Pima and Cochise counties.

Pa 101 Pi [101] Pa [797]

TRIBAL NAME.—The Papagos and Pimas were formerly one tribe. Authorities differ as to the derivation and meaning of the name. One view is that Papago means "hair cut", another that it means "baptized". Neither of these meanings has any etymological basis or value. The most reasonable derivation of the term seems to be the following, derived from conversation with the oldest Indians: the division of the Pimas occurred from the labors

3: Whited G-5 (1890) 1894 NT15 River Yumans
Papago NU28

133 134 PHYSICAL CHARACTERISTICS OF THE REGION.—The territory covered by the Papagos in their migrations, and in which their villages are located, consists of mountain ranges and the intervening valleys. The soil of the valleys contains a considerable proportion of clay, so that it is all called adobe soil. In the mesas or plains occasional strips of sand occur. Along the arroyos, or dry water channels, deposits of gravel are numerous. The arroyos become raging torrents during the rainy season, rendering travel impossible or dangerous during the temporary flood. The soil of the foothills is very rocky. Alkali is present in the soil in varying proportions, giving the characteristic name to the vast stretch of country known as the alkali desert. It is not the presence of alkali, however, that makes the desert, but the absence of water. An abundant water supply renders this alkali soil equal in fertility to any soil in the country. As it is, the valleys contain a great deal of arable land, 137 which is evident from the great areas covered with grass, which form the stock ranges, and from occasional sections where weeds grow so luxuriantly after the rainy season as to overtop a man on horseback. Some portions of the valleys are covered with mesquite trees and bushes, and also sagebrush, but these sections produce abundant crops when irrigated.

132 CLIMATE.—The climate is very mild, being neither extremely cold in winter nor hot in summer. The mean average temperature during the summer of 1889 was 81.3°, and during the winter of 1889–1890 it was 52.6°.

312 WATER SUPPLY.—There are occasional wells found among the Indian villages. Natural water holes are quite numerous, and by raising embankments of earth in favorable localities the Papagos make huge ponds or reservoirs, which they call tanks. These natural and artificial reservoirs are only serviceable for the temporary storage of water, and toward the last they become filthy mudholes. The Indians, however, continue to use the water as long as it can possibly be considered a fluid. In one place the Papagos have dug a well 60 feet deep, and with incredible labor have made a footpath from the top of the ground to the level of the water.

Water is found by boring at a depth of from 200 to 600 feet, but no flowing wells have yet been obtained in the territory. The water in the wells rises from 50 to 150 feet, and then is raised to the surface by steam pumps. The Indians, however, have not the financial resources with which to sink or operate artesian wells. When their tanks are exhausted they remove with droves and herds to the valleys and canyons in the mountains, frequently crossing over into Mexico.

137 TIMBER.—The varieties of timber within the Papago range are the willow, cottonwood, mesquite, palloverde, and on the southern and western mountain slopes the oak. The mesquite is the most common timber, as it grows freely on the mesas. It rivals the hickory as firewood, throwing out great heat, and the coals retain fire even longer than coals of hickory. The mesquite, however, is very easy to cut, and is handled with far less labor than hickory.

137 FRUITS AND NUTS.—The sahuaro (giant cactus), which grows on the rocky soil of the foothills and covers the moderate mountain ranges, rises in height from 10 to 60 feet, and is a mass of vegetable matter, supported by an internal skeleton of ribs or poles of woody fiber. The fruit of this remarkable plant grows out of the top of the trunk and arms, and constitutes an important article of food, the Papagos almost living upon it during June, July, 272 and a part of August. They gather it with long poles, and eat it either fresh or after it has been dried. They make 262 from the juice a syrup and a drink which is slightly charged with alcohol. Although the ribs of the sahuaro are [273] very valuable, the Indians never destroy the plant, and are greatly incensed if a white man cuts one down; but [313] when the cactus dies and the vegetable matter dries, powders, and falls away, leaving the ribs exposed and bare, they are used as supports for the dirt roofs of adobe houses, for the sides of houses when plastered with mud, for poultry and pigeon houses, and other small structures.

262 The Papagos eat the fruit of the prickly pear cactus and make a syrup from its juice; from the mezcal (sweet [273] also) a highly intoxicating drink is made. The root, which is bulbous, grows partly under and partly above the ground, and when roasted it is very delicious, and great quantities are consumed by the Papagos. They dig out of the ground a vegetable which appears to be a species of wild onion, but they call it a groundnut, and relish it [388] highly when boiled. A very useful plant found in large quantities, called the soap plant (amole), forms a substitute for soap.

282 The tannin root, resembling the sweet potato in appearance, grows in great profusion. It contains a large portion of tannic acid, and is a substitute for the astringent barks, hemlock and oak, which are used in tanneries.

262 252 FOOD.—In addition to the fruits, nuts, and flesh already mentioned, their food consists of wheat flour (usually ground by the women on a metate) prepared in simple ways, parched wheat and corn, boiled wheat and corn, flour made from the mesquite bean, beans, boiled squash, green and dried squash seeds, beef, and poultry.

181 [444] INDUSTRY.—The Papagos seem to be esteemed by the whites in general as the best Indians in the territory. They are industrious, and are good help in mines, on ranches, in the harvest field, and on stock ranges. They easily learn the mechanical arts, and set and handle mining drills as well as white men. The engineer at the Quijotoa mines said that his assistant was a Papago, and that he was fully competent to run the engine.

[912] In practical irrigation the Indians are conceded to be the superiors of the whites, and in their domain this is the foundation of agricultural skill. When properly educated there can be no doubt of their ability to acquire the scientific principles of the art.